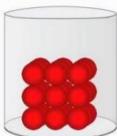


Solids, Liquids and Gases

**Solids** stay in one place and can be held. They do not flow like liquid (some solids like sand or salt can be poured). Solids always take up the same amount of space. They do not spread out like gases.

**solid**



- rigid
- fixed shape
- fixed volume

cannot be squashed

**Liquids** can flow or be poured easily. They are not easy to hold. Liquids can their shape depending on the container they are in.

**liquid**

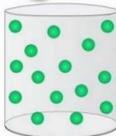


- not rigid
- no fixed shape
- fixed volume

cannot be squashed

**Gases** are often invisible. Gases do keep their shape. They spread out and change their shape and volume to fill up whatever container they are in.

**gas**



- not rigid
- no fixed shape
- no fixed volume

can be squashed

Changing State

Some materials change state when they are heated or cooled and some of these changes can be reversed.



**Evaporation** occurs when water turns into water vapour. This happens very quickly when the water is hot, like in a kettle, but it can also happen slowly, like a puddle evaporating in the warm air

Everyday examples of evaporation: washing drying, water boiling, puddles evaporating on a hot day.



**Condensation** is when **water vapour** is cooled down and turns into water. The water vapour in the air cools when it touches the cold surface. Everyday examples of **condensation**: water droplets forming inside windows or on a cold glass.



Key Vocab

|                     |   |
|---------------------|---|
| <b>Matter</b>       | Any solid, liquid or gas that exists in the universe  |
| <b>Solid</b>        | Substance that stays the same shape whether in a container or not                                   |
| <b>Liquid</b>       | Substance that can flow and take on the shape of a container  |
| <b>Gas</b>          | Substance that has no fixed shape, like oxygen  |
| <b>Temperature</b>  | How hot or cold something is, normally measured in degrees Celsius (°C)                             |
| <b>Evaporation</b>  | The process of liquid heating and changing into a gas   |
| <b>Condensation</b> | The process of a gas cooling and changing into a liquid   |
| <b>Water cycle</b>  | The process of water being recycled over and over again   |
| <b>Particle</b>     | An extremely small unit of matter   |
| <b>Water vapour</b> | This is water that takes the form of a gas. When water is boiled, it evaporates into a water vapour |

## The Water Cycle

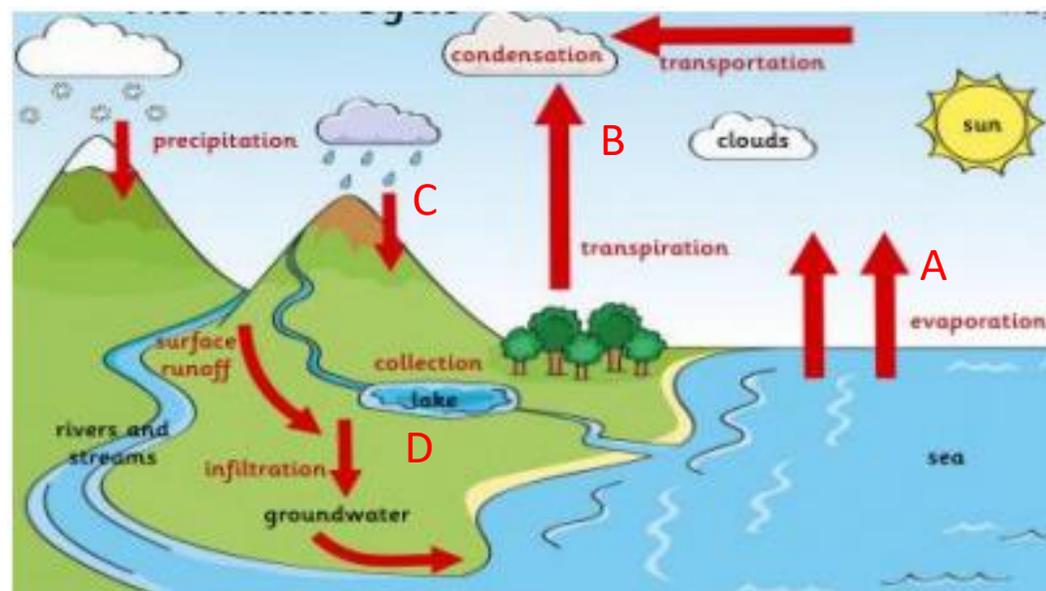
**Condensation** and **evaporation** both happen within the **water cycle**

**A)** The water evaporates into the air. The sun heats up water on land and in rivers, lakes and seas and turns into water vapour. The **water vapour** rises into the air.

**B)** Water vapour condenses into clouds. Water in the air cools down and changes back into tiny droplets of liquid water, forming clouds.

**C)** Water falls as rain. The clouds get heavy and water falls back to the earth in the form of rain or snow.

**D)** Water returns to the sea. Rain water runs over the land and collects in lakes or rivers, which take it back to the sea. The cycle starts all over again.



## Temperature

|                                     |   |
|-------------------------------------|---|
| <b>Boiling</b>                      | Water boils at exactly 100 degrees Celsius (100°C).   |
| <b>Melting</b>                      | Different solids melt at different temperatures<br>Ice melts at 0°C<br>Chocolate melts at about 35°C              |
| <b>Freezing</b>                     | Water freezes at 0°C  |
| <b>Evaporation and condensation</b> | Water can evaporate and condense at any temperature. But the warmer it is the faster the evaporation takes place. |

